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CHRONOLOGICAL LISTING OF LUNAR EVENTS

BY

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GODDARD SPACE FLIGHT CENTER

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INTRODUCTION

The catalogue of lunar events which follows contains all information available to the authors up to April 15, 1966. Column 1 gives a running number, column 2 the date of occurrence, column 3 the site and duration of the event, column 4 a short description of the phenomenon, column 5 the name(s) of the observer or observers, and column 6 the number of the reference. The references are listed following the catalogue.

A lunar event may be defined here as a temporary change in the appearance of a lunar feature, involving a limited area (in most cases, of dimensions of a few kilometers) of the lunar surface. For the sake of easy reference, however, reports of so-called luminescence, marked with a double asterisk, have been included in the catalogue, although in two cases these involve rather larger areas of the moon (Catalogue Nos. 195 and 200).

The list of lunar events is as complete as we have been able to make it. Final revisions will involve checking of the remaining primary references, a few of which we still have to find.

We have not used reports of events which, for one reason or another (e. g., through special lighting effects, multiple reflections, and changes of appearance caused by libration), were considered to be spurious. No reports of apparently permanent changes are included. Many have been reported for sites such as Messier, Linné, and Bartlett, but in most cases, the evidence for real change is not conclusive.

We wish to record with gratitude help given by Miss B. Welther and Dr. G. Fielder in locating many old papers unavailable in Tucson, and the contribution of data by Drs. J. Larink, J. O'Keefe, and P. Treanor, S. J., Mrs. W. Cameron and especially by P. Moore. E. Whitaker has kindly checked the evaluation of doubtful cases. [redacted]

CHRONOLOGICAL LISTING OF LUNAR EVENTS

No.	Date (U.T.)	Feature, Duration	Description of Change	Observer	Ref.
1	1587 Mar 5*		"A sterre is sene in the bodie of the mone vpon the [blank] of Marche, whereat many men merureiled, & not without cause, for it strode directly betwene the pointes of her hornes, the mone being chaunged, not passing 5 or 6 daies before."		1,2
2	1668 Nov 26*		Bright star-like point on dark side.		2,3,4
3	1685 Dec 10	Plato	Reddish streak on crater floor seen during eclipse.	Bianchini	5,6
4	1715 May 3		"Lightning" on the face of the moon. De Louville explained this	de Louville, Halley	7,8,9, 10

*Deduced from available data.

			as storms.		
5	1725 Aug 16		A track of ruddy light, like a beam, crossing the middle of the obscure (shadowed) area.	Bianchini	11,12
6	1772 Oct 11		Bright spot on disk of fully eclipsed moon.	Beccaria's nephew and niece	6,13
7	1778 Jun 24		During solar eclipse, observed bright spot near lunar limb almost as bright as sun.	de Ulloa	6,8,14
8	1783 Mar	near Aristarchus	Bright points seen during observation of occultation.	W.Herschel	15
9	1783 May 4	Aristarchus, vicinity of	Red, fourth mag, less than 3 sec arc.	W.Herschel, Mrs. Lind	15,16
10	1784	Aristarchus	Nebulous bright spot of light.	Schröter	9
11	1785	Aristarchus	Nebulous bright spot of light.	Schröter	9
12	1786 Dec 24	Aristarchus	Extraordinarily bright.	Schröter	9

13	1787 April 19	Dark side	3 "volcanoes". The brightest, 3'57".3 from northern limb, the other two much farther towards the center of the moon.	W.Herschel	15
14	1787 April 20	Dark side	Brightest "volcano" even brighter and at least 3 miles in diameter.	W. Herschel .	15
15	1787 May 19-20	Aristarchus		von Bruhl	9,15,18
16	1787 Oct 7	Aristarchus		Schröter	9
17	1788 Jan 11	near Plato	Bright spot on dark side.	Observers in Mannheim	9
18	1788 Mar 9-10		Bright spot on dark side.	Schröter	9
19	1788 Mar 13	Riccioli	Bright spot.	Schröter	9
20	1788 Apr 9	Aristarchus, 1 hour		Bode	20
21	1788 Apr 9-11	Aristarchus	Bright spot 26 sec north of crater rim.	Schröter	9,19,22

22	1788 Aug 27			Schröter	9
23	1788 Sep 26	1 min, 18 sec arc SW of Plato, 15 min	Whitish bright spot shining somewhat hazily and 4 to 5 sec arc in diameter, 5th mag, about 1 min 18 sec southwest of Plato and in bright mountainous region bounding Mare Imbrium.	Schröter	19,22
24	1788 Sep 26	near Aristarchus, 1/2 hour		Schröter	134
25	1788	Aristarchus	Brilliant spots.	Bode	8,20
26	1789 Jan 10		Lunar volcano.	Seyffer	8,21
27	1789 Mar 30	Grimaldi, and near Riccioli	Two flickering spots on west edge of Grimaldi, and near Riccioli on dark side of moon a bright spot.	Schröter	8,22
28	1789 Mar	near Aristarchus	Brilliant spots near Aristarchus, luminous spots observed in obscured part of moon.	Bode	8,23

29	1789 Apr	near Aristarchus	Brilliant spots near Aristarchus, luminous spots observed in obscured part of moon.	Bode	8,23
30	1789 May	near Aristarchus	Brilliant spots near Aristarchus, luminous spots observed in obscured part of moon.	Bode	8,23
31	1790 Jan 17	Aristarchus region	Small, hazy spot of light.	Schröter	9
32	1790 Feb 15-18	Aristarchus region	Small, hazy spot of light.	Schröter	9
33	1790 Mar 19	Aristarchus region	Small, hazy spot of light.	Schröter	9
34	1790 Oct 22		During total eclipse, Herschel saw at least 150 small, round, bright red luminous points.	W.Herschel	6,15
35	1792	Aristarchus	Many occasions; special appearance.	Bode	24
36	1792		Brilliant spots on dark side.	Schröter	9,25,26
37	1794 Mar 7		Appearance of light like a star seen in dark part of moon.	W.Wilkins, Stretton	8,27,28, 29,30

38	1797 Mar 2	Promontorium Heraclides, vicinity of	"Observations of a volcano on the moon".	Caroché	8, 31
39	1799		Bright spots on dark side, seen during 7 different lunations.	Piazzi	8, 32, 33, 34
40	1820 Oct 17		Brilliant spots in Mare Imbrium south of Sinus Iridum.	Luthmer	49
41	1821 Feb 5-6	Aristarchus, vicinity of	6th-7th mag, 3-4 min arc, luminous appearance on dark side.	Kater, Olbers, Browne	8, 35, 36, 37, 38, 39
42	1821 May 4-6	Aristarchus, vicinity of	On dark side, less than 1 min arc.	Ward, Baily	40, 41
43	1821 Jul 25		Brilliant flashing spots on dark side.	Gruithuisen	42
44	1822 Jan 27	Aristarchus, vicinity of	8th mag.	Struve	44

45	1822		Bright spot.	Fallows	45
46	1822		"Volcanoes" on the moon; several occasions.	Flaugergues	46
47	1822		Lunar "volcano".	Zach	47
48	1822 Jun 22-23	Aristarchus	Lunar "volcano".	Rüppell	48
49	1824 May 1	near Aristarchus	Blinking light of 9th-10th mag on dark side.	Göbel	43
50	1824 Oct 18	Aristarchus, vicinity of	In the east and northeast of Aristarchus a mingling of all kinds of colors in small spots.	Gruithuisen	42, 50
51	1825 Apr 22	Aristarchus, and vicinity	Periodic illumination.	Argelander, Göbel	43, 51
52	1826 Apr	Mare Crisium	Haze or cloud.	Emmett	52
53	1832 Dec 25	Aristarchus, vicinity of	Bright spot.	C.P.Smyth	53

54	1835 Dec 22	near Aristarchus	Bright spot, 9th-10th mag.	C.P.Smyth	53
55	1843 Jul 3		On terminator saw an unusually bright spot which glowed like a fixed star.	Gerling	54
56	1844 Apr 25	Pico, southeast of	A bluish glimmering patch of light, not quite within the night side of the moon.	J.Schmidt	55
57	1847 Mar 18		Singular appearance of dark side.	Rankin	8, 56
58	1847 Dec 11	Teneriffe Mts.	A bright spot about $\frac{1}{4}$ ang diam of Saturn was perceived which, though it varied in intensity like an intermittent light, was at all times visible (dark side).	Hodgson	57
59	1854 Dec 27	Teneriffe Mts. (near Plato), 5 hours	Two luminous fiery spots on bright side. "...an appearance I had never seen before on the surface of the moon though I have	Hart	58

			observed her often during these last 40 years.... It appeared to me from the brightness of the light and the contrast of colour, to be two active volcanoes or 2 mouths of one in action."		
60	1864	Mare Crisium	Bright spot.	Ingall	59
61	1864		Bright spot.	Birt	60
62	1865 Jan 1	Plato, southwest of, 30 min	Bright spot like 4th mag star slightly out of focus. Bright speck remained changeless for 30 min, and its light was steady.	Grover	61
63	1866 Jun 14-16	Aristarchus, vicinity of	Reddish-yellow.	Tempel	64
64	1866		Bright spots on dark side.	Hodgson	65
65	1867 Apr 9	Aristarchus, vicinity of	On dark side, 7th mag.	Elger	66

66	1867 May 7	Aristarchus, vicinity of	Reddish-yellow.	Tempel	64
67	1867		Bright spots on dark side.	Williams	67
68	1869		White spots on the sunlit side.	Birt	62
69	1870		White spots on the moon: "lightning".	Birt	63
70	~1870	Godin	Purplish haze illuminating floor of crater, still in shadow.	Kant	68
71	1873 Jan 4	Kant	Luminous purplish vapors.	Trouvelot	69
72	1878 Mar 10	Mare Crisium	White patch west of Picard badly defined.		55
73	1878 Nov 13	1/2 hour	Lunar volcano.	Hammes, and others	55,70
74	1880 Jan 18			Gaudibert	
75	1880 Nov 6				

76	1881 Aug 6-7		Whole region between Aristarchus and Herodotus and southern part of Great Rille appeared in strong violet light as if covered with fog.	Klein	71
77	1881 Dec 4	Aristarchus	During eclipse, Aristarchus was a white spot in the coppery disk and continued so.	S.J.Johnson	72,73
78	1884 Oct 4	Tycho	Like a star of the 2nd mag (eclipse).	Parsehian	73,74
79	1884 Oct 4		Peaks were visible as brilliant points with slight red aureoles (eclipse).	Bye	73,75
80	1885 Feb 19	Small crater near Hercules	Small crater was dull red with vivid contrast.	Gray	136
81	1885 Feb 21	Cassini	Red patches.	Knopp	136
82	1889 Jul 12	Aristarchus	Brilliance in the surrounding gloom was striking (lunar eclipse).	Krueger	73,76

83	1891 May 23	Aristarchus region	Half hour before end of totality, Aristarchus and region immediately north of it became conspicuous and increased in brightness from that time on.	W.E.Jackson	73,77
84	1892	Thales	Pale luminous haze.	Barnard	55
85	1893	Schröter's Valley	Puff of whitish vapor obscuring details.	Pickering	137
86	1897 Sep 21	Aristarchus	Glimmering streaks.	Molesworth	78
87	1898 Jan 7	Tycho region	About mid-eclipse, shadow so dense that details of surface disappeared entirely, except that bright ray extending SSE from Tycho was clearly visible throughout its whole extent and continued so throughout eclipse.	Chevremont	73,79
88	1898 Jul 3	Proclus	Half-hour after mid-eclipse the crater shone with reddish light	Moye	73,80

			in shadow.		
89	1898 Dec 27	Aristarchus	Aristarchus brilliant (eclipse).	Stuyvaert	73,81
90	1901 Oct 25	Marius	A number of light streaks noticed on the crater floor. [Usually none are seen.]	Bolton	82
91	1902 Aug 12	near Lambert	Brilliant star-like point on dark side of moon's terminator, mag 3 or 4.	G.S.Jones	83
92	1902 Oct 16				
93	1903 Mar 1-3	Aristarchus region		Rey	84
94	1904 Jul 31	Plato	Bright hazy object 2 sec arc in diameter on crater floor.	Pickering	85
95	1904 Oct 2	Plato	Total or partial obscuration of crater floor.	Elger, Klein, Hodge	78,86
96	1905 Feb 19	Aristarchus	Shining in the dark as a little	Moye	73,87

			star (eclipse).		
97	1905 Mar 8				
98	1905 Aug 15	Tycho	Visible, even brilliant (eclipse).	Rey	73,88
99	1906 Aug 4	Aristarchus	Shone conspicuously (eclipse).	Ward	73,89
100	1907 Jan 22	Plato	Glow of light part of Plato.	Fauth	90
101	1912 Apr 1	Tycho	Visible like a bright spot standing out in the dark slate-gray shadow. Only Tycho was seen (eclipse).	LeRoy	73,91
102	1912 May 19		Small red glowing area noticed on shadow side of moon.	Valier	92
103	1912 Sep 25	Pico B	Haze spreading from eastern end of crater.	Pickering	93
104	1913 Mar 21		During totality, there remained visible to the northeast only a	G.Jackson	73,94

			luminous point not much larger than the planet Mars and of the same color.		
105	1915 Apr 21	south of Posidonius	Noticed special occurrence south of large circle Posidonius which he took as evidence of water vapor.	Houdard	95
106	1915 Apr 23	Clavius		A.G.Cook	55
107	1917 Jan 7	Dionysius	Point on rim of crater shone like a small star for some time after entering the shadow (eclipse).	W.F.A.Ellison	73,97
108	1919 Nov 7	Tycho, vicinity	Long ray in direction of Longo-montanus remained visible glowing in weak gray-green light during whole eclipse (until clouds stopped observation).	Fock	73,98
109	1927 May 12		Complete obscuration of crater.	H.P.Wilkins	30
110	1931 Feb 22	Aristarchus region	Reddish, yellow.	Joulia	99

111	1931 Mar 27	Tycho		Barker	30
112	1931	Aristarchus	Bluish glare.	Goodacre, Molesworth	78
113	1933 Mar 30	Aristarchus region	White.	Douillet	100
114	1933 Sep 1	Neighborhood of Pico, and Pico B	Haze observed.	Rawstron	93
115	1933 Oct 1	Neighborhood of Pico, and Pico B	Haze observed.	Rawstron	93
116	1936 May 4	Eratosthenes	Detected small bright spots on floor of crater.	Martz	101
117	1936 Oct 4	Eratosthenes	Many small bright spots on crater floor, some of which Martz detected, but Johnson drew bright bands in their positions.	Haas	101
118	1936 Oct 25	Eratosthenes	Small bright spots on floor of crater.	Haas	101

119	1937 Sep 17	Aristarchus	Bright streak.	H.M.Johnson	101
120	1937 Sep 28	Riccioli	Color of dark area was deep purple next night same with vivid hue.	Haas	101
121	1937 Oct 26	Alphonsus, Ptolemaeus, and Herschel	Milky floors.	Alter	102
122	1937 Dec 12	Plato	Strongly marked streak of orange-brown on west wall.	Barker	103
123	1938 Jan 16-17	Plato	Brownish gold-veined surface of color irregularly laid on smooth floor of crater.	Barker	103
124	1938 Feb 14	Plato	Golden-brown spot on west wall very prominent with a yellowish glow without a definite boundary spreading over floor of crater.	Fox	103
125	1939 Mar 29	Copernicus, 15 min	Faint glow.	H.P.Wilkins	104

126	1939 Aug 2	Schickard	Dense fog.	Moore	105
127	1939 Oct 19	Macrobius	Floor of crater reddish-brown, a hue ordinarily absent.	Barcroft	101
128	1939 Dec 27	Aristarchus	Slight bluish tinge on the still brilliant east wall.	Barcroft	101
129	1940 Jun 14	Plato	Two hazy streaks of medium intensity, much complex detail.	Haas	101
130	1940 Jul 14	Tycho	Curious faint milky-looking luminosity seen. Luminous marks in shadow were ragged-edged and irregular-shaped.	Haas	101
131	1940 Oct 19	Lichtenberg area	Pronounced reddish-brown or orange color around area. Found color less marked next night, and slight by October 22.	Barcroft	101, 138
132	1940 Dec 2	Aristarchus	Distinguished crater in dark hemisphere as a bright spot.	Vaughan	101

133	1940 Dec 9	Tycho	Found some luminosity on east crater rim or east outer slope.	Barcroft	101
134	1941 Feb 6	Conon	Faint bright spot, not too definite in outline, seen on crater floor.	Vaughan	101
135	1941 Mar 31	Aristarchus	Crater perceived by earthshine (Haas thought it must have been unusually brilliant).	Barcroft	101
136	1942 Feb 2	Kepler, east of	Whitish glow near earthlit limb, east of Kepler.	Fisher	105
137	1942 Aug 26	Atlas	Dark areas faded in crater.	Haas	106
138	1944 Apr 4	Klein N (now Hyginus N)		Wilkins	30
139	1944 Aug 12	Plato	Exceptional darkness of crater floor, three light spots noted at foot of west wall. Although no light streaks were visible, there	Wilkins	107

			was a large and conspicuous spot near the center. Since this spot had been noted as slightly but definitely rimmed all round, Wilkins suggested that temporary dark cloud or vapor may have covered true floor up to level of rim.		
140	1944 Aug 31	Schickard	Mist on crater floor.	Wilkins	105
141	1945 Oct 9	Plato	Bright flash on crater floor near west wall.	Thornton	86, 105
142	1947 Jan 10	Eratosthenes	Without normal shadow.	Hill	105
143	1948 Feb 17	Dawes	Bright spot.	Thornton	55
144	1948 Jul 21-22	Mare Crisium, several hours	Almost featureless apart from Picard, Pierce.	Moore	55
145	1948 Jul 27	Promontorium Heraclides	Blurred and misty.	Moore	55

146	1948 Aug 8		A small bright flash on earthlit portion...like a bright sparkle of frost on the ground.	Woodward	30
147	1948 Aug 16	Picard, west of	Two areas west of Picard appeared featureless.	Moore	55
148	1949 Feb 10	Schröter's Valley, near Cobrahead	Diffused patch of thin smoke or vapor from east side of Schröter's Valley near Cobrahead, spreading into plain, detail indistinct, hazy (surrounding area clear).	Thornton	105
149	1949 May 1	Aristarchus	Visible in earthshine, glowing suddenly as diffused light patch.	Wilkins	86,108
150	1950 Jun 27	Herodotus	Bright point in crater.	Bartlett	96
151	1951 Jan 21	Lichtenberg	Red patch.	Baum	138
152	1951 Feb 4	West of Endymion	Mist over peak.	Baum	55
153	1951 May 17	Gassendi	Bright speck of short duration.	Wilkins	30

154	1951 Aug 20	Pickering	Brilliant white patch inside crater.	Moore	30
155	1952 Jan 21	Lichtenberg	Bright spot.	Baum	105
156	1952 Apr 3		Twenty-one spots were charted, one surrounded by a light area, while three streaks were seen in the northeast quarter.	Wilkins, Moore	105
157	1952 Apr 4	Plato	Obscuration of crater floor.	Cragg	30
158	1952 Dec 24	Thaetetus	Bright spot; hazy line of light.		105
159	1954 May 10	crater in Ptolemaeus	Flash.	Firsoff	109
160	1954 Aug 18				55
161	1954 Nov 5	Copernicus	Bright point.	Johnstone	96
162	1955 Apr 24	near Posidonius	White flash of short duration north of Mare Serenitatus near to Posidonius.	Wykes	110

163	1955 Jun 25	Theophilus	Mistiness; absent the next night.	Firsoff	109
164	1955 Aug 26	near Carpathians, ~35 sec	Bright flare on dark side similar to 2nd mag star.	McCorkle	111
165	1955 Sep 8	Taurus Mountains	Two flashes from edge of Taurus Mountains.	Lambert	111
166	1955 Sep 28	Cobrahead	Almost obscured.	Bestwick	55
167	1956 Jan 24	east edge of crater Cavendish, ~10 min	Variable point of light .	Houghton, Warner	112
168	1956 Oct 26	Alphonsus	A suspected partial obscuration of the floor based on differences in detail in infrared and ultra-violet photographs.	Alter	102, 113
169	1957 Oct 12	Aristarchus, 1 hour	Bright flash; then brownish eccentric patch.	Dachille and daughter	129
170	1957 Oct 13	in or near Aristarchus	Bright spot of light ("explosion").	Haas	114

171	1958 Sep 23	Piton	Became enveloped in an obscuring cloud-like mist.		55
172	1958 Oct 16		Bright spot in dark area of moon.	Mayemson	115
173	1958 Nov 3	Alphonsus	Reddish glow, followed by effusion of gas.	Kozyrev	86, 116
174	1958 Nov 18	Alphonsus	Diffuse cloud over central mountain.	Poppendiek, Bond	102, 117
175	1958 Nov 18	Alpetragius	Portion of shadow in crater vanished.	Stein	86
176	1958 Nov 19	Alphonsus	Reddish patch close to central peak.	Wilkins, Hole	118, 139
177	1958 Nov 22	Alphonsus	Grey spot.	Bartha	140
178	1958 Dec 19	Alphonsus	Reddish patch close to central peak.	Wilkins, Hole	118, 139, 140
179	1959 Jan 22	Aristarchus	Interior, light brilliant blue, later turning white.	Alter	119

180	1959 Jan 23	Aristarchus	Brilliant blue interior.	Alter	129
181	1959 Feb 18	Alphonsus	Red patch.	Hole	140
182	1959 Apr 19	east of Mare Humorum	Bright point to east of mare.	Macfarlane	120
183	1959 Sep 5	Aristarchus	Irregular, intermittent star-like point of light, 8th-9th mag, appeared within bright area. No color seen.	Rule	121
184	1959 Sep 13	Littrow	Obliterated by a hovering cloud (Feist disagrees with Bradford).	Bradford	55
185	1959 Oct 23	Alphonsus	Red glow seen. Spectrum showed unusual features.	Kozyrev	122
186	1960 Jan 6	Alphonsus	Red spot.	Warner	141
187	1960 Nov	Piton, ~ 1/2 hour	Red obscuration concealing peak.	Scheller	129
188	1960 Dec	Piton	Red obscuration less intense	Scheller	129

			than in November.		
189	1961 Jan	Piton	Red obscuration less intense than in November.	Scheller	129
190	1961 Oct 18	Eratosthenes	Bright spot in crater.	Bartlett	96
191	1961 Nov 26	Aristarchus region	Red glow seen. Spectra in red and blue.	Kozyrev	123
192	1961 Nov 28	Aristarchus region	Red glow seen. Spectra in red and blue.	Kozyrev	123
193	1961 Dec 3	Aristarchus region	Red glow seen. Spectra in red and blue.	Kozyrev	123
194	1962 Sep 5	region of Walter near terminator, 7 min	Faint point of light.	Chalk	129
195	1962 Sep 16 **	whole moon	Spectrum showed UV emission, particularly in H and K lines by comparison with spectra of Sun, Mars, and Jupiter.	Spinrad	133

196	1962 Oct 8	Aristarchus, ~1 hour	Activity.	R.M.Adams	129
197	1963 Oct 5	Aristarchus	Enhancement of 30% at 5450 A.	Scarfe	124
198	1963 Oct 30	Aristarchus region	Color changes: reddish-orange to ruby patches.	Greenacre, Barr	125
199	1963 Oct 30	Cobrahead, 7 min	Brightened area, 7th-11th mag.	Budine, Farrell	129
200	1963 Nov 1***	near Kepler, ~ 20 min	Enhancement of large area in red light.	Kopal, Rackham	126
201	1963 Nov 28	Aristarchus, Schröter's Valley, $1\frac{1}{4}$ hours	Red spots, then violet, blue haze.	Greenacre, et al.	125
202	1963 Nov 28	Cobrahead, 35 min	Pink spot on west side.	Tombaugh	129
203	1963 Nov 28	Aristarchus, Anaximander, ~ 1 hour	Red spot in Aristarchus and also on north edge of Anaximander.	W.Fisher	129

204	1963 Dec 28	Aristarchus-Herodotus, 30 min	Red area.	9 students at Hiroshima, Japan	127
205	1963 Dec 30	Aristarchus region	Purple-blue.	Doherty, and others	55
206	1963 Dec 30	NE limb, ~20 min	During eclipse, anomalous reddish glow inside umbra. Strong orange-red color on W rim of crater, >10 mag.	Many observers	128
207	1964 Feb 25	Cobrahead (3 min), Aristarchus (1 min)	Red flashes, > 12 mag.	Budine	129
208	1964 Mar 16	Aristarchus	Sudden red glow on southwest rim.	Lecuona	129
209	1964 Mar 18	Aristarchus	Flash.	Earl and brother	129
210	1964 Apr 22	near Ross D	Gas cloud.	Cross and others	129
211	1964 May 17	Theophilus	Crimson color on west rim, ~10 mag.	Dieke	129

212	1964 May 18	near Ross D, >1 hour	White gas obscuration moved 18 mi/hr, new cloud moved 10 mi/hr.	Cross and others, Harris	129
213	1964 May 20	Plato, ~10 min	Strong orange-red color on W rim of crater, > 10 mag.	Bartlett	130
214	1964 Jun 6	50 min	Spur between Aristarchus and Herodotus; red spots (glow) in Schröter's Valley.	Schmidling, St. Clair, Platt	129
215	1964 Jun 17	near Ross D, >45 min	Moving gas cloud.	Cross and others	129
216	1964 Jun 28	S region of Aristarchus	Reddish-brown tone observed.	Bartlett	130
217	1964 July 17	Plato	Faint pink bands (1) at base of inner W wall and (2) on rim of N wall.	Bartlett	130
218	1964 Jul 18	SE of Ross D, >1 hour	Bright area expanded in amber filter.	Harris	129

219	1964 Jul 18	Plato, some minutes	Pink tinge to west wall, 10th mag.	Bartlett	129
220	1964 Aug 26	Aristarchus, ~1 hour	Red and blue bands.	Genatt, Reid	129
221	1964 Sep 20	Aristarchus-Herodotus	Several red spots in area.	Crowe, Cross	129
222	1964 Sep 20	near Ross D, 5 min	Opaque outgassing obscuration.	Cross	129
223	1964 Sep 22	Kunowsky, > 1 hour	Red area blinked in blinker.	Gilheaney, Hall, Johnson	129
224	1964 Oct 27	Alphonsus	Reddish-pink patch at base of sunlit central peak.	L.Johnson, et al.	129
225	1964 Nov 14	Plato	Peak on W wall very brilliant white. At foot of peak on inner side, strong blue band. Immediately adjacent, on SE was a small, bright, red spot.	Bartlett	130

226	1964 Dec 19	Aristarchus, 1 min	Brightened by a factor of five.	Budine, Farrell	129
227	1964 Dec 19		Anomalous bright area during eclipse.	Hill, and students	131
228	1965 Jul 1	Aristarchus, dark side	Star-like image.	Emanuel	129
229	1965 Jul 2	Aristarchus, 1 hour 21 min	Bright spot like star on dark side, est. mag 4.	Emanuel, et al.	129,130
230	1965 Jul 3	Aristarchus, ~70 min	Pulsating spot (on dark side).	Emanuel, et al.	130
231	1965 Jul 4	Aristarchus, 1 hour	Bright spot, no pulsations (dark side).	Emanuel, et al.	130
232	1965 Jul 8	Theophilus, 10 min	Bright spot.	Whittier College group	129,130
233	1965 Jul 9	Aristarchus, 2 hours 6 min	Star-like image.	Emanuel	129

234	1965 Jul 31	Aristarchus	Star-like image.	Welch	129
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